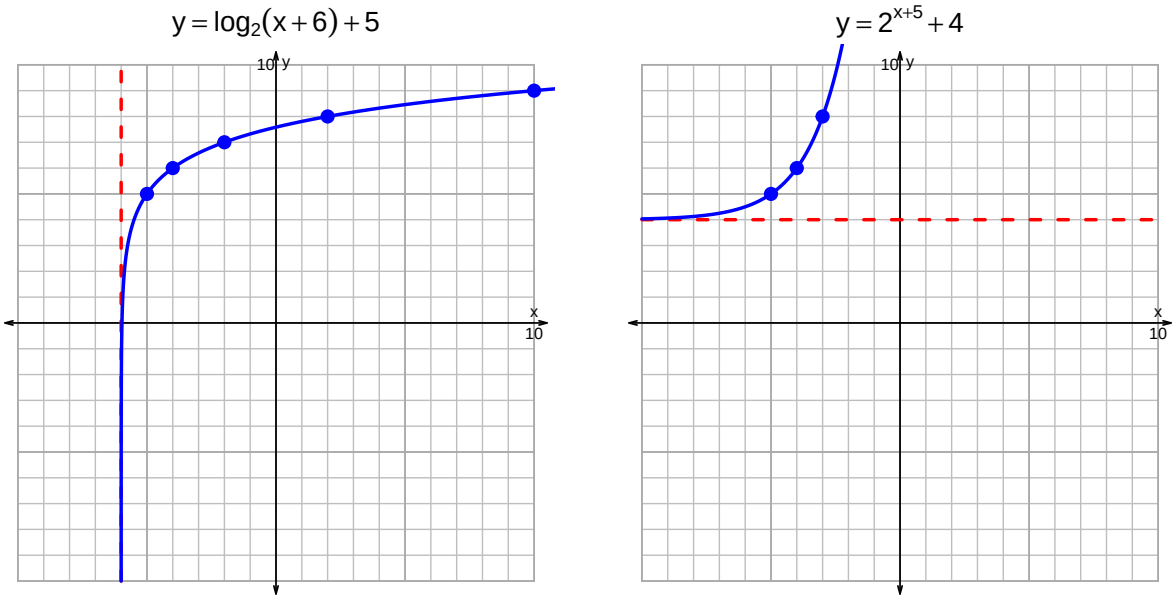
Name: Date:

## s18quiz: EXP LOG (Solution v102)

1. Graph $y = \log_2(x+6)+5$ and $y = 2^{x+5}+4$ on the grids below. Also, draw any asymptotes with dotted lines.




2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-23 = \left(\frac{-5}{7}\right) \cdot 2^{3t/4}$$

Divide both sides by $\frac{-5}{7}$.

$$\frac{23 \cdot 7}{5} = 2^{3t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{23 \cdot 7}{5}\right) = \frac{3t}{4}$$

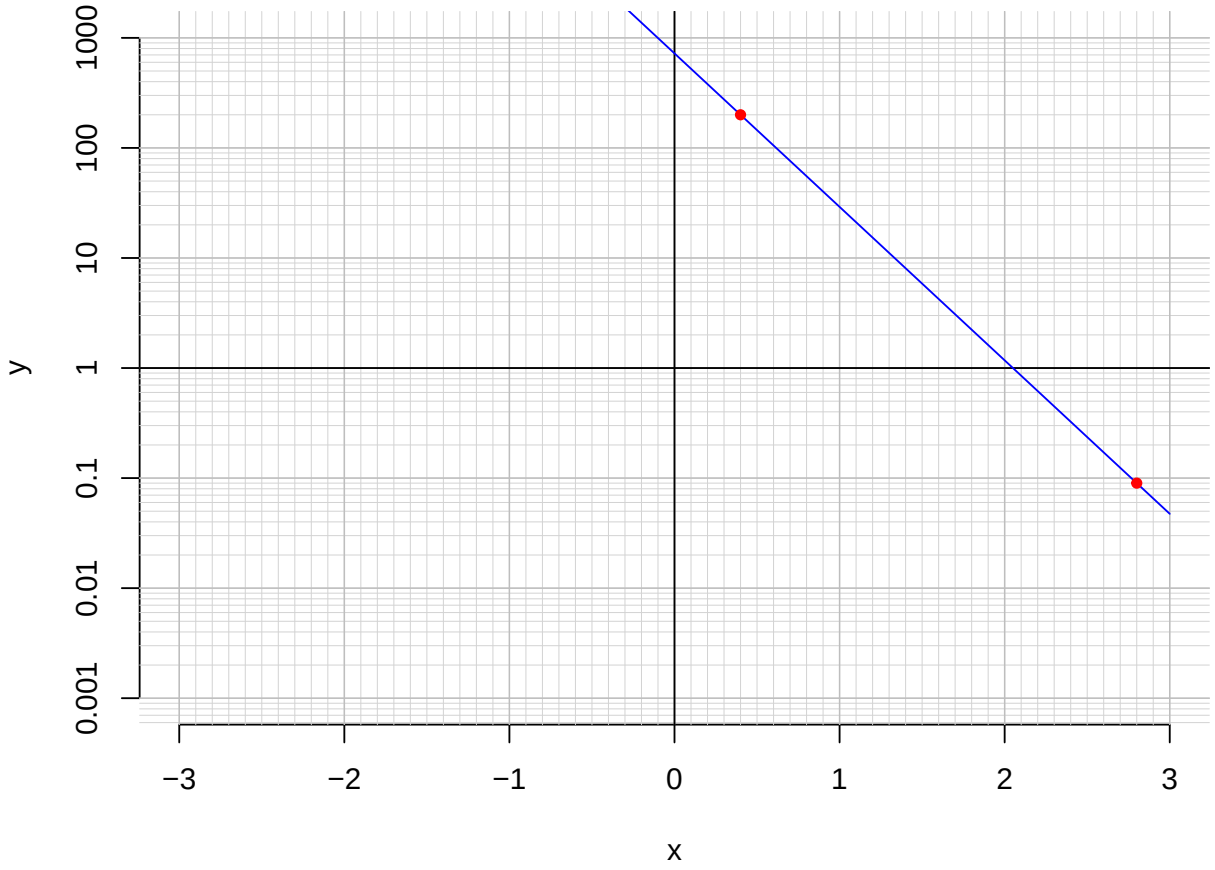
Divide both sides by $\frac{3}{4}$.

$$\frac{4}{3} \cdot \log_2\left(\frac{23 \cdot 7}{5}\right) = t$$

Switch sides.

$$t = \frac{4}{3} \cdot \log_2\left(\frac{23 \cdot 7}{5}\right)$$

3. An exponential function $f(x) = 722 \cdot e^{-3.21x}$ is graphed below on a semi-log plot.




a. Using the plot above, evaluate $f(0.4)$.

$$f(0.4) = 200$$

b. Express $f^{-1}(x)$, the inverse of $f$.

$$f^{-1}(x) = \frac{-1}{3.21} \cdot \ln\left(\frac{x}{722}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.09)$.

$$f^{-1}(0.09) = 2.8$$